



AMENDMENT TO CLAIMS

1.(currently amended) An image processing method comprising the steps of:

defining a local region containing a pixel of interest in an original image;

defining in a plurality of modes a pixel group consisting of a plurality of pixels containing said pixel of interest and a pixel group(s) consisting of a plurality of pixels not overlapping those in the former pixel group, in said region;

selecting a pixel group mode from said defined plurality of pixel group modes which best fits a structure of said original image in said region;

calculating an average value of at least said pixel group;
and

producing an image using [an] the calculated pixel value of said pixel group containing the pixel of interest in said selected pixel group mode, as a new pixel value for said pixel of interest.

2.(original) An image processing method comprising the steps of:

defining a local region containing a pixel of interest in an original image;

defining in a plurality of modes a pixel group consisting of a plurality of pixels containing said pixel of interest and a pixel group(s) consisting of a plurality of pixels not overlapping those in the former pixel group, in said region;

selecting a pixel group mode from said defined plurality of

group modes which best fit a structure of said original image in said region;

calculating an average pixel value of said pixel group containing the pixel of interest in said selected pixel group mode;

calculating an average pixel value of said region; and

producing an image using a pixel value obtained from a weighted addition of said average pixel value of the pixel group and said average pixel value of the region, as a new pixel value for said pixel of interest.

3.(original) An image processing method comprising the steps of:

defining a local region containing a pixel of interest in an original image;

defining in a plurality of modes a pixel group consisting of a plurality of pixels containing said pixel of interest and a pixel group(s) consisting of a plurality of pixels not overlapping those in the former pixel groups, in said region.

selecting a pixel group mode from said defined plurality of pixel group modes which best fits a structure of said original image in said region;

calculating an average pixel value of said pixel group containing the pixel of interest in said selected pixel group mode;

calculating an average pixel value of said region;

performing a weighted addition on said average pixel value of the pixel group and said average pixel value of the region; and

producing an image using a pixel value obtained from a weighted addition of the pixel value obtained from said former weighted addition and a pixel value of said pixel of interest, as a new pixel value for said pixel of interest.

4.(original) An image processing method comprising the steps of:
defining a local region containing a pixel of interest in an original image;

defining in a plurality of modes a pixel group consisting of a plurality of pixels containing said pixel of interest and a pixel group(s) consisting of a plurality of pixels not overlapping those in the former pixel group, in said region;

selecting a pixel group mode from said defined plurality of pixel group modes which best fits a structure of said original image in said region;

calculating an average pixel value of said pixel group containing the pixel of interest in said selected pixel group mode;

calculating an average pixel value of said region;

performing a weighted addition on said average pixel value of the pixel group and said average pixel value of the region;

producing an image using a pixel value obtained from a weighted addition of the pixel value obtained from said former weighted addition and a pixel value of said pixel of interest, as a new pixel value for said pixel of interest; and

performing a weighted addition on said produced image and said original image.

5.(original) The image processing method of claim 4, wherein a weighting factor for said weighted addition of said produced

image and said original image is adjustable.

6.(original) The image processing method of any one of claims 2 - 4, wherein a weighting factor for said weighted addition of said average pixel value of the pixel group and said average pixel value of the region is a function of a minimum value and a maximum value of a total sum of respective residual sums of squares of pixel values of said pixel groups, said total sum being calculated for each of said pixel group modes.

7.(original) The image processing method of claim 6, wherein said function is a function which makes a weight for said average pixel value of the region maximum when the minimum value and the maximum value of said total sum of residual sums of squares are equal, and reduces the weight for said average pixel value of the region as the minimum value of said total sum of residual sums of squares becomes smaller with respect to the maximum value.

8.(original) The image processing method of claim 3 or 4, wherein a weighting factor for said weighted addition of the pixel value obtained from said former weighted addition and a pixel value of said pixel of interest is a function of the minimum value of said total sum of residual sums of squares of pixel values of the pixel groups, said total sum being calculated for each of said pixel group modes, and the variance of noise of said original image.

9.(original) The image processing method of claim 8, wherein said function is a function which makes a weight for the pixel value obtained from said former weighted addition maximum when the minimum

value of said total sum of residual sums of squares divided by the number of pixels in said pixel group mode is equal to said variance of noise, and reduces the weight for the pixel value obtained from said former weighted addition as the difference between the minimum value of said total sum of residual sums of squares divided by the number of pixels in said pixel group mode and said variance of noise becomes larger.

10.(currently amended) The image processing method of any of claims [1] 2 - 4, wherein said step of selecting a pixel group mode is performed by selecting a pixel group mode in which said total sum of residual sums of squares of pixel values of the pixel groups is minimum.

11.(currently amended) The image processing method of any of claims [1] 2 - 4, wherein said step of selecting a pixel group mode is performed by selecting a pixel group mode in which said total sum of residual sums of squares of pixel values of the pixel groups is closes to the variance of noise of said original image multiplied by the number of pixels in the pixel group mode.

12.(currently amended) An image processing method comprising the steps of:

defining in a plurality of modes a local region containing a pixel of interest in an original image;

defining in a plurality of modes a pixel group consisting of a plurality of pixels containing said pixel of interest and a pixel group(s) consisting of a plurality of pixels not overlapping those in the former pixel group, in each of said defined plurality of

modes of region;

selecting a pixel group from said defined plurality of pixel group modes which best fits a structure of said original image in said region throughout said plurality of modes of region;

calculating an average value of at least said pixel group; and
producing an image using [an] the calculated average pixel value of said pixel group containing the pixel of interest in said selected pixel group mode, as a new pixel value for said pixel of interest.

13.(original) An image processing method comprising the steps of:

defining in a plurality of modes a local region containing a pixel of interest in an original image;

defining in a plurality of modes a pixel group consisting of a plurality of pixels containing said pixel of interest and a pixel group(s) consisting of a plurality of pixels not overlapping those in the former pixel group, in each of said defined plurality of modes of region;

selecting a pixel group mode from said defined plurality of pixel group modes which best fits in a structure of said original image in said region throughout said defined plurality of modes of region;

calculating an average pixel value of said pixel group containing the pixel of interest in said selected pixel group mode;

calculating an average pixel value of said region in one of said plurality of modes of region in which said selected pixel group mode is defined; and

producing an image using a pixel value obtained from a weighted addition of said average pixel value of the pixel group and said average pixel value of the region, as a new pixel value for said pixel of interest.

14.(original). An image processing method comprising the steps of:

defining in a plurality of modes a local region containing a pixel of interest in an original image;

defining in a plurality of modes a pixel group consisting of a plurality of pixels containing said pixel of interest and a pixel group(s) consisting of a plurality of pixels not overlapping those in the former pixel group, in each of said defined plurality of modes of region;

selecting a pixel group mode from said defined plurality of pixel group modes which best fits a structure of said original image in said region throughout said defined plurality of modes of region;

calculating an average pixel value of said pixel group containing the pixel of interest in said selected pixel group mode;

calculating an average pixel value of said region in one of said plurality of modes of region in which said selected pixel group mode is defined;

performing a weighted addition on said average pixel value of the pixel group and said average pixel value of the region; and

producing an image using a pixel value obtained from a weighted addition of the pixel value obtained from said former weighted addition and a pixel value of said pixel of interest, as a new pixel value for said pixel of interest.

15.(original) An image processing method comprising the steps of:

defining in a plurality of modes a local region containing a pixel of interest in an original image;

defining in a plurality of modes a pixel group consisting of a plurality of pixels containing said pixel of interest and a pixel group(s) consisting of a plurality of pixels not overlapping those in the former pixel group, in each of said defined plurality of modes of region;

selecting a pixel group mode from said defined plurality of pixel group modes which best fits a structure of said original image in said region throughout said defined plurality of modes of region;

calculating an average pixel value of said pixel group containing the pixel of interest in said selected pixel group mode;

calculating an average pixel value of said region in one of said plurality of modes of region in which said selected pixel group mode is defined;

performing a weighted addition on said average pixel value of the pixel group and said average pixel value of the region;

producing an image using a pixel value obtained from a weighted

addition of the pixel value obtained from said former weighted addition and a pixel value of said pixel of interest, as a new pixel value for said pixel of interest; and

performing a weighted addition on said produced image and said original image.

16.(original) The image processing method of claim 15, wherein a weighting factor for said weighted addition of said produced image and said original image is adjustable.

17.(original) The image processing method of any one of claims 13 - 15, wherein a weighting factor for said weighted addition of said average pixel value of the pixel group and said average pixel value of the region is a function of a minimum value and a maximum value of a total sum of respective residual sums of squares of pixel values of said pixel groups, said total sum being calculated for each of said pixel group modes throughout said defined plurality of modes of region.

18.(original) The image processing method of claim 17, wherein said function is a function which makes a weight for said average pixel value of the region maximum when the minimum value and the maximum value of said total sum of residual sums of squares are equal, and reduces the weight for said average pixel value of the region as the minimum value of said total sum of residual sums of squares becomes smaller with respect to the maximum value.

19.(original) The image processing method of claim 14 or 15, wherein a weighting factor for said weighted addition of the pixel value obtained from said former weighted addition and a pixel value of said pixel of interest is a function of the minimum value of

said total sum of residual sums of squares of pixel values of the pixel groups, said total sum being calculated for each of said pixel group modes throughout said defined plurality of modes of region, and the variance of noise of said original image.

20.(original) The image processing method of claim 19, wherein said function is a function which makes a weight for the pixel value obtained from said former weighted addition maximum when the minimum value of said total sum of residual sums of squares divided by the number of pixels in said pixel group mode is equal to said variance of noise, and reduces the weight for the pixel value obtained from said former weighted addition as the difference between the minimum value of said total sum of residual sums of squares divided by the number of pixels in said pixel group mode and said variance of noise becomes larger.

21. (currently amended) The image processing method of any one of claims [12] 13 - 15, wherein said step of selecting a pixel group mode is performed by selecting an image group mode in which said total sum of residual sums of squares of pixel values of the pixel groups is minimum throughout said defined plurality of modes of region.

22.(currently amended) The image processing method of any one of claims [12] 13 - 15, wherein said step of selecting a pixel group mode is performed by selecting a pixel group mode in which said total sum of residual sums of squares of pixel values of the pixel groups is closest to the variance of noise of said original image multiplied by the number of pixels in the pixel group mode.

23. (currently amended) An image processing apparatus comprising:

a region defining device for defining a local region containing a pixel of interest in an original image;

a pixel group defining device for defining in a plurality of modes a pixel group consisting of a plurality of pixels containing said pixel of interest and a pixel group(s) consisting of a plurality of pixels not overlapping those in the former pixel group, in said region;

a selecting device for selecting a pixel group mode from said defined plurality of pixel group modes which best fits a structure of said original image in said region;

means for calculating an average value of at least said pixel group; and

an image producing device for producing an image using [an] the calculated average pixel value of said pixel group containing the pixel of interest in said selected pixel group mode, as a new pixel value for said pixel of interest.

24.(original) An image processing apparatus comprising:

a region defining device for defining a local region containing a pixel of interest in an original image;

a pixel group defining device for defining in a plurality of modes a pixel group consisting of a plurality of pixels containing said pixel of interest and a pixel group(s) consisting of a plurality of pixels not overlapping those in the former pixel group, in said region;

a selecting device for selecting a pixel group mode from said defined plurality of pixel group modes which best fits a structure

of said original image in said region;

a first pixel value calculating device for calculating an average pixel value of said pixel group containing the pixel of interest in said selected pixel group mode;

a second pixel value calculating device for calculating an average pixel value of said region; and

an image producing device for producing an image using a pixel value obtained from a weighted addition of said average pixel value of the pixel group and said average pixel value of the region, as a new pixel value for said pixel of interest.

25.(original) An image processing apparatus comprising:

a region defining device for defining a local region containing a pixel of interest in an original image;

a pixel group defining device for defining in a plurality of modes a pixel group consisting of a plurality of pixels containing said pixel of interest and a pixel group(s) consisting of a plurality of pixels not overlapping those in the former pixel group, in said region;

a selecting device for selecting a pixel group mode from said defined plurality of pixel group modes which best fits a structure of said original image in said region;

a first pixel value calculating device for calculating an average pixel value of said pixel group containing the pixel of interest in said selected pixel group mode;

a second pixel value calculating device for calculating an average pixel value of said region;

an addition device for performing a weighted addition on said average pixel value of the pixel group and said average pixel value of the region; and

an image producing device for producing an image using a pixel value obtained from a weighted addition of the pixel value obtained from said former weighted addition and a pixel value of said pixel of interest, as a new pixel value for said pixel of interest.

26.(original) An image processing apparatus comprising:

a region defining device for defining a local region containing a pixel of interest in an original image;

a pixel group defining device for defining in a plurality of modes a pixel group consisting of a plurality of pixels containing said pixel of interest and a pixel group(s) consisting of a plurality of pixels not overlapping those in the former pixel group, in said region;

a selecting device for selecting a pixel group mode from said defined plurality of pixel group modes which best fits a structure of said original image in said region;

a first pixel value calculating device for calculating an average pixel value of said pixel group containing the pixel of interest in said selecting pixel group mode;

a second pixel value calculating device for calculating an average pixel value of said region;

a first addition device for performing a weighted addition on said average pixel value of the pixel group and said average pixel value of the region;

an image producing device for producing an image using a pixel

value obtained from a weighted addition of the pixel value obtained from said former weighted addition and a pixel value of said pixel of interest, as a new pixel value for said pixel of interest; and

a second addition device for performing a weighted addition on said produced image and said original image.

27.(original) The image processing apparatus of claim 26, wherein a weighting factor for said weighted addition of said produced image and said original image is adjustable.

28.(original) The image processing apparatus of any one of claims 24 - 26, wherein that a weighting factor for said weighted addition of said average pixel value of the pixel group and said average pixel value of the region is a function of a minimum value and a maximum value of a total sum of respective residual sums of squares of pixel values of said pixel groups, said total sum being calculated for each of said pixel group modes.

29.(original) The image processing apparatus of claim 28, wherein said function is a function which makes a weight for said average pixel value of the region maximum when the minimum value and the maximum value of said total sum of residual sums of squares are equal, and reduces the weight for said average pixel value of the region as the minimum value of said total value of said total sum of residual sums of squares becomes smaller with respect to the maximum value.

30.(original) The image processing apparatus of claim 25 or 26, wherein a weighting factor for said weighted addition of the pixel value obtained from said former weighted addition and a pixel value of said pixel of interest is a function of the minimum value

of said total sum of residual sums of squares of pixel values of the pixel groups, said total sum being calculated for each of said pixel group modes, and the variance of noise of said original image.

31.(original) The image processing apparatus of claim 30, wherein said function is a function which makes a weight for the pixel value obtained from said former weighted addition maximum when the minimum value of said total sum of residual sums of squares divided by the number of pixels in said pixel group mode is equal to said variance of noise, and reduces the weight for the pixel value obtained from said former weighted addition as the difference between the minimum value of said total sum of residual sums of squares divided by the number of pixels in said pixel group mode and said variance of noise becomes larger.

32.(currently amended) The image processing apparatus of any one of claims [23] 24 - 26, wherein said selecting of a pixel group mode is performed by selecting a pixel group mode in which said total sum of residual sum of squares of pixel values of the pixel groups is minimum.

33. (currently amended) The image processing apparatus of any one of claims [23] 24 - 26, wherein said selecting of a pixel group mode is performed by selecting a pixel group mode in which said total sum of residual sums of squares of pixel values of the pixel groups is closest to the variance of noise of said original image multiplied by the number of pixels in the pixel group mode.

34. (currently amended) An image processing apparatus comprising:
a region defining device for defining in a plurality of modes

a local region containing a pixel of interest in an original image;

a pixel group defining device for defining in a plurality of modes a pixel group consisting of a plurality of pixels containing said pixel of interest and a pixel group(s) consisting of a plurality of pixels not overlapping those in the former pixel group, in each of said defined plurality of modes of region;

a selecting device for selecting a pixel group mode from said defined plurality of pixel group modes which best fits a structure of said original image in said region throughout said defined plurality of modes of region;

means for calculating an average value of at least said pixel group; and

an image producing device for producing an image using [an] the calculated average pixel value of said pixel group containing the pixel of interest in said selected pixel group mode, as a new pixel value for said pixel of interest.

35.(original) An image processing apparatus comprising:

a region defining device for defining in a plurality of modes a local region containing a pixel of interest in an original image;

a pixel group defining device for defining in a plurality of modes a pixel group consisting of a plurality of pixels containing said pixel of interest and a pixel group(s) consisting of a plurality of pixels not overlapping those in the former pixel group, in each of said defined plurality of modes of region;

a selecting device for selecting a pixel group mode from said defined plurality of pixel group modes which best fits a structure

of said original image in said region throughout said defined plurality of modes or region;

a first pixel value calculating device for calculating an average pixel value of said pixel group containing the pixel of interest in said pixel group mode;

a second pixel value calculating device for calculating an average pixel value of said region in one of said plurality of modes of region in which said selected pixel group mode is defined; and

an image producing device for producing an image using a pixel value obtained from a weighted addition of said average pixel value of the pixel group and said average pixel value of the region, as a new pixel value for said pixel of interest.

36.(original) An image processing apparatus characterized in that the apparatus comprises:

a region defining device for defining in a plurality of modes a local region containing a pixel of interest in an original image;

a pixel group defining device for defining in a plurality of modes a pixel group consisting of a plurality of pixels containing said pixel of interest and a pixel group(s) consisting of a plurality of pixels not overlapping those in the former pixel group, in each of said defined plurality of modes of region;

a selecting device for selecting a pixel group mode from said defined plurality of pixel group modes which best fits a structure

of said original image in said region throughout said defined plurality of modes of region;

a first pixel value calculating device for calculating an average pixel value of said pixel group containing the pixel of interest in said selected pixel group mode;

a second pixel value calculating device for calculating an average pixel value of said region in one of said plurality of modes of region in which said selected pixel group mode is defined;

an addition device for performing a weighted addition on said average pixel value of the pixel group and said average pixel value of the region; and

an image producing device for producing an image using a pixel value obtained from a weighted addition of the pixel value obtained from said former weighted addition and a pixel value of said pixel of interest, as a new pixel value for said pixel of interest.

37. (original) An image processing apparatus characterized in that the apparatus comprises;

a region defining device for defining in a plurality of modes a local region containing a pixel of interest in an original image;

a pixel group defining device for defining in a plurality of modes a pixel group consisting of a plurality of pixels containing said pixel of interest and a pixel group(s) consisting of a plurality of pixels not overlapping those in the former pixel group, in each of said defined plurality of modes of region;

a selecting device for selecting a pixel group mode from said defined plurality of pixel group modes which best fits a structure

of said original image in said region throughout said defined plurality of modes of region;

a first pixel value calculating device for calculating an average pixel value of said pixel group containing the pixel of interest in said selected pixel group mode;

a second pixel value calculating device for calculating an average pixel value of said region in one of said plurality of modes of region in which said selected pixel group is defined;

a first addition device for performing a weighted addition on said average pixel value of the pixel group and said average pixel value of the region;

an image producing device for producing an image using a pixel value obtained from a weighted addition of the pixel value obtained from said former weighted addition and a pixel value of said pixel of interest, as a new pixel value for said pixel of interest; and

a second addition device for performing a weighted addition on said produced image and said original image.

38.(original) The image processing apparatus of claim 37, wherein a weighting factor for said weighted addition of said produced image and said original image is adjustable.

39.(original) The image processing apparatus of any one of claims 35 - 37, wherein a weighting factor for said weighted addition of said average pixel value of the pixel group and said average pixel value of the region is a function of a minimum value and a

maximum value of a total sum of respective residual sums of squares of pixel values of said pixel groups, said total sum being calculated for each of said pixel group modes throughout said defined plurality of modes of region.

40.(original) The image processing apparatus of claim 39, wherein said function is a function which makes a weight for said average pixel value of the region maximum when the minimum value and the maximum value of said total sum of residual sums of squares are equal, and reduces the weight for said average pixel value of the region as the minimum value of said total sum of residual sums of squares becomes smaller with respect to the maximum value.

41.(original) The image processing apparatus of claim 36 or 37, wherein a weighting factor for said weighted addition of the pixel value obtained from said former weighted addition and a pixel value of said pixel of interest is a function of the minimum value of said total sum of residual sums of squares of pixel values of the pixel groups, said total sum being calculated for each of said pixel group modes throughout said defined plurality of modes of region, and the variance of noise of said original image.

42. (original) The image processing apparatus of claim 41, wherein said function is a function which makes a weight for the pixel value obtained from said former weighted addition maximum when the minimum value of said total sum of residual sums of squares divided by the number of pixels in said pixel group mode is equal to said variance of noise, and reduces the weight for the pixel value obtained from said former weighted addition as the difference between the minimum value of said total sum of residual sums

of squares divided by the number of pixels in said pixel group mode and said variance of noise becomes larger.

43. (currently amended) The image processing apparatus of any one of claims [34] 35 - 37, wherein said selecting of a pixel group mode is performed by selecting an image group mode in which said total sum of residual sums of squares of pixel values of the pixel groups is minimum throughout said defined plurality of modes of region;

44.(currently amended) The image processing apparatus of any one of claims [34] 35 - 37, wherein said selecting of a pixel group is performed by selecting a pixel group mode in which said total sum of residual squares of pixel values of the pixel groups is closest to the variance of noise of said original image multiplied by the number of pixels in the pixel group mode.

45.(currently amended) A recording medium which records in a computer-readable manner a program for a computer to perform the functions of:

defining a local region containing a pixel of interest in an original image;

defining in a plurality of modes a pixel group consisting of a plurality of pixels containing said pixel of interest and a pixel group(s) consisting of a plurality of pixels not overlapping those in the former pixel group, in said region;

selecting a pixel group mode from said defined plurality of pixel group modes which best fits a structure of said original image in said region;

calculating an average value of at least said pixel group;

and

producing an image using [an] the calculated average pixel value of said pixel group containing the pixel of interest in said selected pixel group mode, as a new pixel value for said pixel of interest.

46.(original) A recording medium which records in a computer-readable manner a program for a computer to perform the functions of:

defining in a plurality of modes a pixel group consisting of a plurality of pixels containing said pixel of interest and a pixel group(s) consisting of a plurality of pixels not overlapping those in the former pixel group, in said region;

selecting a pixel group mode from said defined plurality of pixel group modes which best fits a structure of said original image in said region;

calculating an average pixel value of said pixel group containing the pixel of interest in said selected pixel group mode;

calculating an average pixel value of said region; and

producing an image using a pixel value obtained from a weighted addition of said average pixel value of the pixel group and said average pixel value of the region, as a new pixel value for said pixel of interest.

47.(original) A recording medium which records in a computer-readable manner a program for a computer to perform the functions of:

defining a local region containing a pixel of interest in an original image;

defining in a plurality of modes a pixel group consisting of a plurality of pixels containing said pixel of interest and a pixel group(s) consisting of a plurality of pixels not overlapping those in the former pixel group, in said region;

selecting a pixel group mode from said defined plurality of pixel group modes which best fits a structure of said original image in said region;

calculating an average pixel value of said pixel group containing the pixel of interest in said selected pixel group mode;

calculating an average pixel value of said region;

performing a weighted addition on said average pixel value of the pixel group and said average value of the region; and

producing an image using a pixel value obtained from a weighted addition of the pixel value obtained from said former weighted addition and a pixel value of said pixel of interest, as a new pixel value for said pixel of interest.

48.(original) A recording medium which records in a computer-readable manner a program for a computer to perform the functions of:

defining a local region containing a pixel of interest in an original image;

defining in a plurality of modes a pixel group consisting of a plurality of pixels containing said pixel of interest and a pixel group(s) consisting of a plurality of pixels not overlapping those

in the former pixel group, in said region;

selecting a pixel group mode from said defined plurality of pixel group modes which best fits a structure of said original image in said region;

calculating an average pixel value of said pixel group containing the pixel of interest in said selected pixel group mode;

calculating an average pixel value of said region;

performing a weighted addition on said average pixel value of the pixel group and said average pixel value of the region;

producing an image using a pixel value obtained from a weighted addition of the pixel value obtained from said former weighted addition and a pixel value of said pixel of interest, as a new pixel value for said pixel of interest; and

performing a weighted addition on said produced image and said original image.

49.(currently amended) A recording medium which records in a computer-readable manner a program for a computer to perform the functions of:

defining in a plurality of modes a local region containing a pixel of interest in an original image;

defining in a plurality of modes a pixel group consisting of a plurality of pixels containing said pixel of interest and a pixel group(s) consisting of a plurality of pixels not overlapping those in the former pixel group, in each of said defined plurality of modes of region;

selecting a pixel group mode from said defined plurality of pixel group modes which best fits a structure of said original image in said region throughout said defined plurality of modes of region;

calculating an average value of at least said pixel group; and
producing an image using [an] the calculated average pixel value of said pixel group containing the pixel of interest in said selected pixel group mode, as a new pixel value for said pixel of interest.

50.(original) A recording medium which records in a computer-readable manner a program for a computer to perform the functions of:

defining in a plurality of modes a local region containing a pixel of interest in an original image;

defining in a plurality of modes a pixel group consisting of a plurality of pixels containing said pixel of interest and a pixel group(s) consisting of a plurality of pixels not overlapping those in the former pixel group, in each of said defined plurality of modes of region;

selecting a pixel group mode from said defined plurality of pixel group modes which best fits a structure of said original image in said region throughout said defined plurality of modes of region;

calculating an average pixel value of said pixel group containing the pixel of interest in said selected pixel group mode;

calculating an average pixel value of said region in one of said plurality of modes of region in which said selected pixel group

mode is defined; and

producing an image using a pixel value obtained from a weighted addition of said average pixel value of the pixel group and said average pixel value of the region, as a new pixel value for said pixel of interest.

51.(original) A recording medium which records in a computer-readable manner a program for a computer to perform the functions of:

defining in a plurality of modes a local region containing a pixel of interest in an original image;

defining in a pluralit of modes a pixel group consisting of a plurality of pixels containing said pixel of interest and a pixel group(s) consisting of a plurality of pixels not overlapping those in the former pixel group, in each of said defined plurality of modes of region;

selecting a pixel group mode from said defined plurality of pixel group modes which best fits a structure of said original image in said region throughout said defined plurality of modes of region;

calculating an average pixel value of said pixel group containing the pixel of interest in said selected pixel group mode;

calculating an average pixel value of said region in one of said plurality of modes of region in which said selected pixel group mdoe is defined;

performing a weighted addition on said average pixel value of the pixel group and said average pixel value of the region; and

producing an image using a pxiel value obtained from a weighted

addition of the pixel value obtained from said former weighted addition and a pixel value of said pixel of interest, as a new pixel value for said pixel of interest.

52.(original) A recording medium which records in a computer-readable manner a program for a computer to perform the functions of:

defining in a plurality of modes a local region containing a pixel of interest in an original image;

defining in a plurality of modes a pixel group consisting of a plurality of pixels containing said pixel of interest and a pixel group(s) consisting of a plurality of pixels not overlapping those in the former pixel group, in each of said defined plurality of modes of region;

selecting a pixel group mode from said defined plurality of pixel group modes which best fits a structure of said original image in said region throughout said defined plurality of modes of region;

calculating an average pixel value of said pixel group containing the pixel of interest in said selected pixel group mode;

calculating an average pixel value of said region in one of said plurality of modes of region in which said selected pixel group is defined;

performing a weighted addition on said average pixel value of the pixel group and said average pixel value of the region;

producing an image using a pixel value obtained from a weighted

addition of the pixel value obtained from said former weighted addition and a pixel value of said pixel of interest, as a new pixel value for said pixel of interest; and

performing a weighted addition on said produced image and said original image.

53.(currently amended) An imaging apparatus comprising:

a signal collecting device for collecting a signal from an object;

an original image producing device for producing an original image based on said collected signal;

a region defining device for defining a local region containing a pixel of interest in said original image;

a pixel group defining device for defining in a plurality of modes a pixel group consisting of a plurality of pixels containing said pixel of interest and a pixel group(s) consisting of a plurality of pixels not overlapping those in the former pixel group, in said region;

a selecting device for selecting a pixel group mode from said defined plurality of pixel group modes which best fits a structure of said original image in said region;

means for calculating an average value of at least said pixel group; and

an image producing device for producing an image using [an] the calculated average pixel value of said pixel group containing the pixel of interest in said selected pixel group mode, as a new pixel value for said pixel of interest.

54.(original) An imaging apparatus comprising:

a signal collecting device for collecting a signal from an object;

an original image producing device for producing an original image based on said collected signal;

a region defining device for defining a local region containing a pixel of interest in said original image;

a pixel group defining device for defining in a plurality of modes a pixel group consisting of a plurality of pixels containing said pixel of interest and a pixel group(s) consisting of a plurality of pixels not overlapping those in the former pixel group, in said region;

a selecting device for selecting a pixel group mode from said defined plurality of pixel group modes which best fits a structure of said original image in said region;

a first pixel value calculating device for calculating an average pixel value of said pixel group containing the pixel of interest in said selected pixel group mode;

a second pixel value calculating device for calculating an average pixel value of said region; and

an image producing device for producing an image using a pixel value obtained from a weighted addition of said average pixel value of the pixel group and said average pixel value of the region, as a new pixel value for said pixel of interest.

55.(original) An imaging apparatus comprising:

a signal collecting device for collecting a signal from an object;

an original image producing device for producing an original image based on said collected signal;

a region defining device for defining a local region containing a pixel of interest in said original image;

a pixel group defining device for defining in a plurality of modes a pixel group consisting of a plurality of pixels containing said pixel of interest and a pixel group(s) consisting of a plurality of pixels not overlapping those in the former group, in said region;

a selecting device for selecting a pixel group mode from said defined plurality of pixel group modes which best fits a structure of said original image in said region;

a first pixel value calculating device for calculating an average pixel value of said pixel group containing the pixel of interest in said selected pixel group mode;

a second pixel value calculating device for calculating an average pixel value of said region;

an addition device for performing a weighted addition on said average pixel value of the pixel group and said average pixel value of the region; and

an image producing device for producing an image using a pixel

value obtained from a weighted addition of the pixel value obtained from said former weighted addition and a pixel value of said pixel of interest, as a new pixel value for said pixel of interest.

56.(currently amended) An imaging apparatus comprising:

a signal collecting device for collecting a signal from an object;

~~a-signal~~ an original image producing device for producing an original image based on said collected signal;

a region defining device for defining a local region containing a pixel of interest in said original image;

a pixel group defining device for defining in a plurality of modes a pixel group consisting of a plurality of pixels containing said pixel of interest and a pixel group(s) consisting of a plurality of pixels not overlapping those in the former pixel group, in said region;

a selecting device for selecting a pixel group mode from said defined plurality of pixel group modes which best fits a structure of said original image in said region;

a first pixel value calculating device for calculating an average pixel value of said pixel group containing the pixel of interest in said selected pixel group mode;

a second pixel value calculating device for calculating an average pixel value of said region;

a first addition device for performing a weighted addition on said average pixel value of the pixel group and said average pixel of the region;

an image producing device for producing an image using a pixel value obtained from a weighted addition of the pixel value obtained from said former weighted addition and a pixel value of said pixel of interest, as a new pixel value for said pixel of interest; and

a second addition device for performing a weighted addition on said produced image and said original image.

57.(currently amended) An imaging apparatus comprising:

a signal collecting device for collecting a signal from an object;

an original image producing device for producing an original image based on said collected signal;

a region defining device for defining in a plurality of modes a local region containing a pixel of interest in an original image;

a pixel group defining device for defining in a plurality of modes a pixel group consisting of a plurality of pixels containing said pixel of interest and a pixel group(s) consisting of a plurality of pixels not overlapping those in the former pixel group, in each defined plurality of modes of region;

a selecting device for selecting a pixel group mode from said defined plurality of pixel group modes which best fits a structure of said original image in said region throughout said defined plurality of modes of region;

means for calculating an average value of at least said pixel group; and

an image producing device for producing an image using [an] the calculated average pixel value of said pixel group containing

the pixel of interest in said selected pixel group mode, as a new pixel value for said pixel of interest.

58.(original) An imaging apparatus characterized in that the apparatus comprises:

- a signal collecting device for collecting a signal from an object;

- an original image producing device for producing an original image based on said collected signal;

- a region defining device for defining in a plurality of modes a local region containing a pixel of interest in an original image;

- a pixel group defining device for defining in a plurality of modes a pixel group consisting of a plurality of pixels containing said pixel of interest and a pixel group(s) consisting of a plurality of pixels not overlapping those in the former pixel group, in each of said defined plurality of modes of region;

- a selecting device for selecting a pixel group mode from said defined plurality of pixel group modes which best fits a structure of said original image in said region throughout said defined plurality of modes of region;

- a first pixel value calculating device for calculating an average pixel value of said pixel group containing the pixel of interest in said selected pixel group mode;

- a second pixel value calculating device for calculating an average pixel value of said region in one of said plurality of modes of region in which said selected pixel group mode is defined; and

- an image producing device for producing an image using a pixel

value obtained from a weighted addition of said average pixel value of the pixel group and said average pixel value of the region, as a new pixel value for said pixel of interest.

59.(original) An imaging apparatus comprising:

a signal collecting device for collecting a signal from an object;

an original image producing device for producing an original image based on said collected signal;

a region defining device for defining in a plurality of modes a local region containing a pixel of interest in said original image;

a pixel group defining device for defining in a plurality of modes a pixel group consisting of a plurality of pixels containing said pixel of interest and a pixel group(s) consisting of a plurality of pixels not overlapping those in the former pixel group, in each of said defined plurality of modes of region;

a selecting device for selecting a pixel group mode from said defined plurality of pixel group modes which best fits a structure of said original image in said region throughout said defined plurality of modes of region;

a first pixel value calculating device for calculating an average pixel value of said pixel group containing the pixel of interest in said selected pixel group mode;

a second pixel value calculating device for calculating an average pixel value of said region in one of said plurality of modes of region in which said selected pixel group mode is defined;

an addition device for performing weighted addition on said average pixel value of the pixel group and said average pixel value of the region; and

an image producing device for producing an imaging using a pixel value obtained from a weighted addition of the pixel value obtained from said former weighted addition and a pixel value of said pixel of interest, as a new pixel value for said pixel of interest.

60.(original) An imaging apparatus characterized in that the apparatus comprises:

a signal collecting device for collecting a signal from an object;

an original image producing device for producing an original image based on said collected signal;

a region defining device for defining in a plurality of modes a local region containing a pixel of interest in said original image;

a pixel group defining device for defining in a plurality of modes a pixel group consisting of a plurality of pixels containing said pixel of interest and a pixel group(s) consisting of a plurality of pixels not overlapping those in the former pixel group, in each of said defined plurality of modes of region;

a selecting device for selecting a pixel group mode from said defined plurality of pixel group modes which best fits a structure of said original image in said region throughout said defined plurality of modes of region;

a first pixel value calculating device for calculating an

average pixel value of said pixel group containing the pixel of interest in said selected pixel group mode;

a second pixel value calculating device for calculating an average pixel value of said region in one of said plurality of modes of region in which said selected pixel group mode is defined;

a first addition device for performing a weighted addition on said average pixel value of the pixel group and said average pixel value of the region;

an image producing device for producing an image using a pixel value obtained from a weighted addition of the pixel value obtained from said former weighted addition and a pixel value of said pixel of interest, as a new pixel value for said pixel of interest; and

a second addition device for performing a weighted addition on said produced image and said original image.